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EXAMINER	
LE, JESSICA N	

ART UNIT	PAPER NUMBER
2169	

DATE MAILED: 10/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/825,894	ZENG ET AL.	
	Examiner	Art Unit	
	Jessica N. Le	2169	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :08/02/04; 9/9/04; 9/21/05; 1/3/06; 6/19/06.

DETAILED ACTION

1. Claims 1-50 are presented for examination.

Information Disclosure Statement

2. Applicant's Information Disclosure Statement, filed on 08/02/2004, has been acknowledged and recorded. See attached forms PTO-1449.

Applicant's Information Disclosure Statement, filed on 09/09/2004, has been acknowledged and recorded. See attached forms PTO-1449.

Applicant's Information Disclosure Statement, filed on 09/21/2005, has been acknowledged and recorded. See attached forms PTO-1449.

Applicant's Information Disclosure Statement, filed on 01/03/2006, has been acknowledged and recorded. See attached forms PTO-1449.

Applicant's Information Disclosure Statement, filed on 06/19/2006, has been acknowledged and recorded. See attached forms PTO-1449.

Specification

3. The disclosure is objected to because of the following informalities: "from an end-user (e.g.,(e.g., an advertiser, Web site promoter, etc) in Paragraph [0032] should be changed to "from an end-user (e.g., an advertiser, Web site promoter, etc.)"

Appropriate correction is required.

Claim Objections

4. **Claim 48** is objected to because of the following informalities: "means ti generate" in lines 1-2 should be changed to "means to generate".

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 15-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims **15-28** are not limited to tangible embodiments. In view of Applicant's disclosure, specification (page 20, paragraphs [0047]), the media is not limited to tangible embodiments, instead defined as including both tangible embodiments (e.g., [*Communication media: "typically embodies computer-readable instruction, ..."*] (Paragraph [0047])) and intangible embodiments (e.g., [*a carrier wave*] (Paragraph [0047])). As such, the claim is not limited to statutory subject matter and is therefore non-statutory.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 9, 13, 23, 27, 37, & 41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject

matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding **claims 9, 13, 23, 27, 37, & 41**, the specification does not describe "inverted term frequencies." For the purpose of this Office Action, "inverted term frequencies" is understood as invert document frequencies (Spec. page 11, Paragraph [0029]: "Each term vector 136 has dimensions based on term frequency and *inverted document frequency* (TFIDF) scores.").

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 2-14, 16-28, 30-42, & 44-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **claims 2-14**, dependent claims 2-14 recite the term "A *method*" in line 1 of these claims. There is insufficient antecedent basis for this limitation in the claim. It is unclear to Examiner whether this is intended to be the same as or different from "*A method*" recited in independent claim 1, line 1.

Claim 4 recites the limitation "*d, q, k, x*" in line 3, and line 5. There is insufficient antecedent basis for this limitation in the claim.

Regarding **claims 16-28**, dependent claims 16-28 recite the term "*A computer-readable medium*" in line1 of these claims. There is insufficient antecedent basis for this limitation in the claim. It is unclear to Examiner whether this intended to be the as or different from "A *computer-readable medium*" recited in independent claim 15, line 1.

Regarding **claims 30-42**, dependent claims 30-42 recite the term "A *computing device*" in line 1 of these claims. There is insufficient antecedent basis for this limitation in the claim. It is unclear to Examiner whether this intended to be the as or different from "*A computing device*" recited in independent claim 29, line 1.

Regarding **claims 44-50**, dependent claims 44-50 recite the term "A *computing device*" in line 1 of these claims. There is insufficient antecedent basis for this limitation in the claim. It is unclear to Examiner whether this intended to be the as or different from "*A computing device*" recited in independent claim 43, line 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3, 5, 7-8, 12, 15-17, 19, 21-22, 26, 29-31, 33, 35-36, 40, 43-47, & 49-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Bowman et al. US Patent Number 6,006,225 (hereinafter Bowman).

Regarding **claim 1**, Bowman teaches a method for related term suggestion (abstract: "*A search engine is disclosed which* ***suggests related terms***"; and Col. 4, lines 41-42: "***methods for suggesting related terms***"), the method comprising:

generating term clusters (group submitted query terms) (Abstract: "... *The* ***related terms are generated using query term...in the same query***."; and Col. 3, lines 6-7: "***generate a set of related terms*** *for refining* ***a submitted query***") as a function of calculated similarity of term vectors (frequencies/weight/scores) (Col. 9, lines 6-11; and Col. 13, line 43-44: "*top Y terms with the* ***highest summed*** *correlation* ***scores*** *from the non-intersecting* ***related terms***"), each term vector (based on 2 dimensions of frequencies/weight/scores) being generated from search results (Col. 9, line 5: "*from a* ***search results*** *page*") associated with a set of high frequency of occurrence (FOO) (Fig. 4, element 420 and Fig. 7, element 770) historical queries previously submitted to a search engine (Col. 2, line 33: "*on* ***historical query*** *submissions* ***to the search engine***."; and Fig. 1, element 135); and

responsive to receiving a term/phrase (Fig. 7, element 710 – ***receiving each term in the query;*** Col. 1, lines 31-32) from an entity, evaluating the term/phrase in view of terms/phrases in the term clusters to identify one or more related term suggestions (Col. 15, lines 55-59 (or Claim 11); and Col. 4, lines 41-42: "*methods for* ***suggesting related terms***").

Claim 2 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Bowman discloses a method wherein a multi-sense query (Fig. 7, element 750 – ***multi-term query*** *is illustrated as* ***a multi-sense query***) comprises the

term/phrase (Abstract: "*A **search engine**...**suggests related terms**.....**using query term***...").

Claim 3 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Bowman discloses a method wherein the entity is a computer-program application (Col. 1, lines 37-41; and Col. 5, lines 1-2 – wherein "***server program***" and "***server application***" are illustrated as a computer-program application to be used) and/or an end-user (Col. 4, lines 4-6).

Claim 5 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Bowman discloses a method further comprising:

collecting historic query terms (Col. 2, line 33: "*on **historical query** submissions to the **search engine***.") from a query log (Col. 2, line 52: "*a **query log** file*" & lines 56-57: "***the query log***"; and Fig. 1, element 135); and

determining ones of the historic query terms (Col. 2, line 33: "*on **historical query** submissions to the search engine*.") with a high FOO (Fig. 4, element 420 and Fig. 7, element 770).

Claim 7 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Bowman discloses a method wherein evaluating further comprises:

identifying a match between the term/phrase and term(s)/phrase(s) from one or more term clusters (Col. 5, lines 26-28); and

responsive to identifying, generating related term suggestion(s) (Col. 3, lines 6-7: "***generate a set of related terms** for refining a **submitted query***") comprising the

term(s)/phrase(s) (Abstract: "*A search engine...suggests **related terms**.....using **query term**...*").

Claim 8 is rejected for the reasons set forth hereinabove for claim 1 and claim 7 and furthermore Bowman discloses a method wherein the related term suggestion(s) (Col. 4, lines 41-42: "***methods for suggesting related terms***") further comprise for each term/phrase of the term(s)/phrase(s) (Abstract: "*A search engine...suggests related **terms**.....using **query term**...*"), a frequency of occurrence value (Fig. 4, element 420 and Fig. 7, element 770) indicating a number of times the term/phrase occurs (Col. 10, lines 28-19: "***the number of times the related term occurred** in combination with the **key term**.*") in a set of mined historical queries (Col. 2, line 33: "*on **historical query** submissions to the search engine.*").

Claim 12 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Bowman discloses a method wherein the term clusters (group submitted query terms) (Abstract: "*...The related terms are generated using query term...in the same query.*"; and Col. 3, lines 6-7: "*generate a set of related terms for refining a submitted query*") are a first set of term clusters (Col. 3, lines 6-7: "***generate a set of related terms** for refining a submitted query*" wherein a first set of term cluster to be generated and used through this processing), and wherein the method further comprises:

determining that there is no match between the term/phrase and the terms/phrases (Fig. 7); and

responsive to the determining:

making a second set of term clusters (Col. 3, lines 6-7: "*generate a set of related terms for refining a submitted query*" wherein a second set of term cluster to be generated and used through this processing) from calculated similarity of term vectors (frequencies/weight/scores) (Col. 9, lines 6-11; and Col. 13, line 43-44: "*top Y terms with the **highest summed** correlation **scores** from the non-intersecting related terms*"), each term vector (based on 2 dimensions of frequencies/weight/scores) being generated from search results (Col. 9, line 5: "*from a **search results** page*") associated with a set of low FOO (Fig. 7, elements 750, 760 and 770 – wherein exists a low FOO historical queries to be used when there is a match between a multi-term query and all related terms lists/phrase(s)) historical queries previously submitted to the search engine (Col. 2, line 33: "*on **historical query submissions to the search engine***."; and

evaluating the term/phrase in view of terms/phrases of the second set of term clusters to identify one or more related term suggestions (Col. 15, lines 55-59 (or Claim 11); and Col. 4, lines 41-42: "*methods for **suggesting related terms***").

Claims 15-17, 19, 21-22, & 26 are rejected on grounds corresponding to the reasons given above for claims **1-3, 5, 7-8, & 12** and furthermore, Bowman discloses a computer-readable medium (Fig. 1, element 110; Col. 5, lines 37-38: RAM (*random access memory*) is a type of computer-readable medium) comprising "computer-executable instructions for" (Col. 5, lines 33-36: *wherein illustrates database software run on one or more Unix™-based servers and workstations as computer-executable instructions for implement codes*).

Regarding **claim 29**, Bowman teaches a computing device (Fig. 1) comprising:

a processor (Col. 2, lines 19-20: "*processor resources*"); and

a memory (Col. 5, lines 37-38: "*cached* in RAM (*random access memory*) coupled to the processor (Col. 2, lines 19-20: "*processor resources*"), the memory (*cached* in RAM) comprising computer-program instructions executable by the processor for (Col. 5, lines 33-36: *wherein illustrates database software run on one or more Unix™-based servers and workstations as computer-executable instructions for implement codes or processing*):

generating term clusters (group submitted query terms) (Abstract: "*...The related terms are generated using query term...in the same query.*"; and Col. 3, lines 6-7: "*generate a set of related terms for refining a submitted query*") as a function of calculated similarity of term vectors (dimensions of frequencies/weight/scores) (Col. 9, lines 6-11; and Col. 13, line 43-44: "*top Y terms with the **highest summed** correlation **scores** from the non-intersecting **related terms***"), each term vector (based on 2 dimensions of frequencies/weight/scores) being generated from search results (Col. 9, line 5: "*from a search results page*") associated with a set of high frequency of occurrence (FOO) (Col. 3, line1: "the highest degree of frequency"; and Fig. 4, element 420 and Fig. 7, element 770) historical queries previously submitted to a search engine (Col. 2, line 33: "*on **historical query submissions to the search engine***."; and Fig. 1, element 135); and

responsive to receiving a term/phrase from an entity (Fig. 7, element 710 – *receiving each term in the query;* Col. 1, lines 31-32), evaluating the term/phrase in view of terms/phrases in the term clusters to identify one or more related term

suggestions (Col. 15, lines 55-59 (or Claim 11); and Col. 4, lines 41-42: "*methods for **suggesting related terms***").

Claims 30-31 are rejected on grounds corresponding to the reasons given above for claims **2-3** and furthermore, Bowman discloses a computing device (Fig. 1).

Claims 33, 35-36, & **40** are rejected on grounds corresponding to the reasons given above for claims **5, 7-8,** & **12** and furthermore, Bowman discloses a computing device (Fig. 1) further comprising "computer-executable instructions for" (Col. 5, lines 33-36: *wherein illustrates database software run on one or more Unix™-based servers and workstations as computer-executable instructions for implement codes or processing*).

Regarding **claim 43**, Bowman teaches a computing device (Fig. 1) comprising:

generating means to generate term clusters (group submitted query terms) (Abstract: "...*The related terms are **generated using query term**...**in the same query.***"; and Col. 3, lines 6-7: "***generate a set of related terms** for refining a submitted query*") as a function of calculated similarity of term vectors (based on 2 dimensions of frequencies/weight/scores) (Col. 9, lines 6-11; and Col. 13, line 43-44: "*top Y terms with the highest summed correlation scores from the non-intersecting related terms*"), each term vector being generated from search results (Col. 9, line 5: "*from a search results page*") associated with a set of high frequency of occurrence (FOO) (Col. 3, line 1; and Fig. 4, element 420; and Fig. 7, element 770: highest values is illustrated as high frequency of occurrence) historical queries previously submitted to a search engine

(Col. 2, line 33: "*on **historical query submissions to the search engine***."; and Fig. 1, element 135); and

responsive to receiving a term/phrase from an entity (Fig. 7, element 710 – *receiving each term in the query;* Col. 1, lines 31-32), evaluating means to evaluate the term/phrase in view of terms/phrases in the term clusters to identify one or more related term suggestions (Col. 15, lines 55-59 (or Claim 11); and Col. 4, lines 41-42: "*methods for **suggesting related terms***").

Claims 44 –47, and 49 are rejected on grounds corresponding to the reasons Given above for claims **2-3, 5, 7, and 12** and furthermore, Bowman discloses a computing device (Fig. 1).

Claim 50 is rejected for the reasons set forth hereinabove for claim 43 and claim 49 furthermore Bowman discloses a computing device further comprising:

calculating means to calculate (Col. 9, lines 6-11; and Col. 13, line 43-44: "*top Y terms with the highest summed* correlation *scores from the non-intersecting related terms*") that there is no match between the term/phrase and term(s)/phrase(s) from the first set of term clusters (Col. 3, lines 6-7: **"***generate **a set of related terms** for refining a submitted query***"** wherein a first set of term cluster to be generated and used through this processing), the first set being based on high FOO (Fig. 4, element 420; and Fig. 7, element 770: highest values is illustrated as high frequency of occurrence) historical queries (Col. 2, line 33: "*on **historical query submissions to the search engine***."); and

responsive to the calculating (Col. 9, lines 6-11; and Col. 13, line 43-44: "*top Y terms with the **highest summed** correlation **scores** from the non-intersecting related terms*"), identifying means to identify (Col. 1, lines 31-41) a match between the term/phrase and term(s)/phrase(s) from one or more of the second set of term clusters (Col. 8, lines 57-65), the second set being based on low FOO (Fig. 7, elements 750, 760 and 770 – wherein exists a low FOO historical queries to be used when there is a match between a multi-term query and all related terms lists/phrase(s)) historical queries (Col. 2, line 33: "*on **historical query submissions to the search engine***."); and

responsive to identifying (Col. 1, lines 31-41), generating means to generate related term suggestion(s) comprising the term(s)/phrase(s) (Abstract: "...***suggests related terms*** to ...related terms are ***generated*** using query ***term*** ....reflects the frequencies....").

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 4, 6, 9-11,13-14, 18, 20, 23-25, 27-28, 32, 34, 37-39, 41-42, & 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowman as applied to

claims 1-3, 5, 7-8, 12, 15-17, 19, 21-22, 26, 29-31, 33, 35-36, 40, 43-47, & 49-50 above, in view of Bennett US PG Publication No. 2004/0117189 (hereinafter Bennett).

Claim 4 is rejected for the reasons set forth hereinabove for claim 1.

However, Bowman fails to teach a method for related term suggestion, a method further comprising determining the calculated similarity as follows:

$$sim(q_j, q_k) = \sum_{i=1}^{d} w_{ij} \cdot w_{ik} ;$$

wherein weight w for the i^{th} vector's j^{th} term is calculated as follows:

$$w_{ij} = TF_{ij} x \log(N / DF_j) ; \text{ and}$$

wherein TF_{ij} represents term frequency, N is a total number of query terms, and DF_j is a number of extracted feature records that contain term j.

In the same field of endeavor, Bennett discloses a method for related term suggestion, a method further comprising determining the calculated similarity as follows:

$$sim(q_j, q_k) = \sum_{i=1}^{d} w_{ij} \cdot w_{ik} ;$$

wherein weight w for the i^{th} vector's j^{th} term is calculated as follows:

$$w_{ij} = TF_{ij} x \log(N / DF_j) ; \text{ and}$$

wherein TF_{ij} represents term frequency, N is a total number of query terms, and DF_j is a number of extracted feature records that contain term j.

(Bennett, Paragraphs [0366]-[0369]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, having the teachings of Bowman and Bennett before him/her, to use the calculated similarity of term vectors as disclosed by Bennett to evaluate the

term/phrase in view of terms/phrases in the term clusters to identify one or more related term suggestions as disclosed in Bowman to allow providing a word or phrase recognition system that is flexibly and optimally distributed across a client/platform computing architecture, so that improved accuracy, speed and uniformity can be achieved for a wide group of users (Bennett, Paragraph [0075]). One of ordinary skill in the art would be motivated to make the aforementioned combination with reasonable expectation of success.

Claim 6 is rejected for the reasons set forth hereinabove for claim 1.

However, Bowman fails to teach a method for related term suggestion, a method further comprising before creating the term clusters: reducing dimensionality of the term vectors; and normalizing the term vectors.

In the same field of endeavor, Bennett discloses a method further comprising before creating the term clusters:

reducing dimensionality of the term vectors (Paragraph [0361]: "a term vector" and Paragraph [0386]: "which allows all logically possible (even linguistically impossible) word sequences and which ***reduces the task perplexity via probabilistic*** modeling of the N-gram sequences"); and

normalizing the term vectors (Paragraphs [0361]-[0366]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, having the teachings of Bowman and Bennett before him/her, to use reducing dimensionality of the term vectors and normalizing the term vectors as disclosed by Bennett to generating term clusters as disclosed in Bowman to allow

providing a word or phrase recognition system that is flexibly and optimally distributed across a client/platform computing architecture, so that improved accuracy, speed and uniformity can be achieved for a wide group of users (Bennett, Paragraph [0075]). One of ordinary skill in the art would be motivated to make the aforementioned combination with reasonable expectation of success.

Claim 9 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Bowman discloses a method wherein generating the term clusters (group submitted query terms) (Abstract: "...*The related terms are* ***generated using query term...in the same query***"; and Col. 3, lines 6-7: "*generate a set of* ***related terms for*** *refining* ***a submitted query***"**)** further comprises:

sending respective ones of the high FOO (Fig. 4, element 420; and Fig. 7, element 770: highest values is illustrated as high frequency of occurrence) historical queries to the search engine (Col. 2, line 33: "*on* ***historical query*** *submissions* ***to the search engine***.") to obtain the search results (Fig. 9; and Col. 9, line 5: "*from a search results page*");

extracting features (Fig. 2) from at least a subset of search results (Fig. 2) corresponding to the respective ones (Fig. 8A & 8B; Fig. 9); and

However, Bowman fails to teach a method for related term suggestion, a method wherein generating the term clusters further comprises: producing term vectors from the features as a function of term and inverted term frequencies.

In the same field of endeavor, Bennett discloses a method for related term suggestion, a method wherein generating the term clusters further comprises:

producing term vectors from the features as a function of term (Paragraphs [0361]-[0366]) and inverted term frequencies (Paragraph [0369]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, having the teachings of Bowman and Bennett before him/her, to use producing term vectors from the features as a function of term and inverted term frequencies as disclosed by Bennett to sending respective ones of the high FOO historical queries to the search engine to obtain the search results as disclosed in Bowman to allow providing a word or phrase recognition system that is flexibly and optimally distributed across a client/platform computing architecture, so that improved accuracy, speed and uniformity can be achieved for a wide group of users (Bennett, Paragraph [0075]). One of ordinary skill in the art would be motivated to make the aforementioned combination with reasonable expectation of success.

Claim 10 is rejected for the reasons set forth hereinabove for claim 1 and claim 9 and furthermore Bowman discloses a method wherein the features (Fig. 2) comprise a title, description, and/or context (Fig. 2; Col. 2, lines 60-61; and Col. 5, lines 15-22) for the respective ones of the high FOO (Fig. 4, element 420 and Fig. 7, element 770) historical query terms (Col. 2, line 33: "*on* ***historical query submissions to the search engine***.").

Claim 11 is rejected for the reasons set forth hereinabove for claim 1 and claim 9 and furthermore Bowman discloses a method wherein the respective ones comprise top ranked ones of the search results (Fig. 8A & 8B; and Fig. 9).

Claim 13 is rejected for the reasons set forth hereinabove for claim 1 and claim 12 and furthermore Bowman discloses a method wherein making further comprises:

identifying the low FOO historical queries (Fig. 7, elements 750, 760 and 770 – wherein exists a low FOO historical queries to be used when there is a match between a multi-term query and all related terms lists/phrase(s)) from historical queries (Col. 2, line 33: "*on **historical query** submissions to the search engine.*") mined from a query log (Col. 9, lines 8-9: "within the ***query log 135***");

sending respective ones (Col. 3, line 1) of at least a subset of the low FOO (Fig. 7, elements 750, 760 and 770 – wherein exists a low FOO historical queries to be used when there is a match between a multi-term query and all related terms lists/phrase(s)) historical queries to the search engine (Col. 2, line 33: "*on **historical query** submissions **to the search engine**.*") to obtain search results (Fig. 9; and Col. 9, line 5: "*from a search results page*");

extracting (Col. 9, lines 41-43) features from at least a subset of search results (Fig. 8A & 8B; and Fig. 9); and

However, Bowman fails to teach a method wherein making further comprises: producing the term vectors from the features as a function of term and inverted term frequencies.

In the same field of endeavor, Bennett discloses a method wherein making further comprises:

producing the term vectors from the features as a function of term (Paragraphs [0361]-[0366]) and inverted term frequencies (Paragraph [0369]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, having the teachings of Bowman and Bennett before him/her, to use producing term vectors from the features as a function of term and inverted term frequencies as disclosed by Bennett to identifying the low FOO historical queries as disclosed in Bowman to allow providing a word or phrase recognition system that is flexibly and optimally distributed across a client/platform computing architecture, so that improved accuracy, speed and uniformity can be achieved for a wide group of users (Bennett, Paragraph [0075]). One of ordinary skill in the art would be motivated to make the aforementioned combination with reasonable expectation of success.

Claim 14 is rejected for the reasons set forth hereinabove for claim 1 and claim 13 and furthermore Bowman discloses a method further comprising after clustering:

determining (Claim 15) that there is no match between the term/phrase and term(s)/phrase(s) from the first set of term clusters, the first set being based on high FOO historical queries (Fig. 7, elements 750,760, 770); and

responsive to the determining, identifying a match (Col. 1, lines 31-41) between the term/phrase and term(s)/phrase(s) from one or more of the second set of term clusters, the second set being based on low FOO historical queries (Fig. 7, elements 750, 760 and 770 – wherein exists a low FOO historical queries to be used when there is a match between a multi-term query and all related terms lists/phrase(s)); and

responsive to identifying (Col. 1, lines 31-41), generating related term suggestion(s) (Col. 3, lines 6-7: "***generate a set of related terms for refining a***

submitted query") comprising the term(s)/phrase(s) (Abstract: "*A search engine...suggests related* ***terms*** *.....using* ***query term*** *...*") (Col. 12, lines 27-34).

Claims 18, 20, 23-25, & **27-28** are rejected for the reasons set forth hereinabove for claims **4, 6, 9-11,** & **13-14** and furthermore both Bowman and Bennett disclose a computer-readable medium (Bowman, Fig. 1, element 110; Col. 5, lines 37-38: RAM (*random access memory*); Bennett, Paragraphs [0128] & [0420]) further comprising "computer-executable instructions for" (Bowman, Col. 5, lines 33-36: *wherein illustrates database software run on one or more Unix™-based servers and workstations as computer-executable instructions for implement codes or processing; Bennett, Paragraphs [0088] & [0420]*).

Claims 32, 34, 37-39, & **41-42** are rejected for the reasons set forth hereinabove for claims **4, 6, 9-11,** & **13-14** and furthermore both Bowman and Bennett disclose a computer device and further comprising computer-executable instructions (Bowman, Fig. 1; and Bennett, Paragraph [0128]).

Claim 48 is rejected for the reasons set forth hereinabove for claim 43 and furthermore Bowman discloses a computing device (Fig. 1, element 110) wherein the generating means ti generate the term clusters (group submitted query terms) (Abstract: "*...The related terms are* ***generated using query term*** *...in the same query*"; and Col. 3, lines 6-7: "***generate a set of related terms*** *for refining* ***a submitted query***") further comprise:

sending means to send respective ones of the high FOO (Col. 9, line 1) historical queries (Col 4, lines 4-6) to the search engine (Col. 1, line 20: "***search engine*** *to search the Internet for desired information*") to obtain the search results (Fig. 9);

extracting means to extract features from at least a subset of search results corresponding to the respective ones (Col. 9, lines 41-43; and Fig. 8A & 8B; and Fig. 9); and

However, Bowman fails to teach a computing device wherein the generating means ti generate the term clusters further comprise: producing means to produce term vectors from the features.

In the same field of endeavor, Bennett discloses a computing device (Paragraphs [0088], [0128], & [0420]) wherein the generating means ti generate the term clusters further comprise:

producing means to produce term vectors from the features (Paragraphs [0361]-[0366]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, having the teachings of Bowman and Bennett before him/her, to use producing means to produce term vectors from the features as disclosed by Bennett to extracting means to extract features from at least a subset of search results corresponding to the respective ones as disclosed in Bowman to allow providing a word or phrase recognition system that is flexibly and optimally distributed across a client/platform computing architecture, so that improved accuracy, speed and uniformity can be achieved for a wide group of users (Bennett, Paragraph [0075]). One of ordinary

skill in the art would be motivated to make the aforementioned combination with reasonable expectation of success.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Caid et al., US Patent Number 6,760,714: a method and system for generating context vectors associated with images in an image storage and retrieval database system. A context vector is a fixed length series of component values or weights representative of meaning or content.

Morita, US Patent Number 5,297,042: a keyword associative document retrieval system capable of retrieving documents which are required by a user which generating a relevance value which represents a degree/weight of relevance in satisfying a user's requirements.

Niwa et al., US Patent Number 5,987,460: to extract topic words with good balance from words at low frequencies and words at high frequencies in selecting topic words in a retrieved document group, the topic words are classified by occurrence frequency.

Turtle et al., US Patent Number 5,488,725: information or document retrieval from a computer database using probability techniques.

Turtle, US Patent Number 5,418,948: the provision of a technique for handling citations as a syntactic phrases being employed for a "weighting" of the statistical probability algorithms of the inference network.

Turney, US Patent Number 6,470,307: method and apparatus for automatically identifying keywords within a document.

Carrasco et al., US PG Publication Number 2005/0015366: disambiguation of search phrases using interpretation clusters.

Nishioka et al., US PG Publication Number 2002/0178153: a document retrieval assisting method having a user interface with an interactive guidance function realized therein and a document retrieval service or document retrieval assisting service utilizing the same.

Kim et al., US PG Publication Number: 2003/0208482: systems and methods for retrieving and ranking relevant information from the Internet and World Wide Web.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica N. Le whose telephone number is (571) 270-1009. The examiner can normally be reached on M-F 7:30 am - 5:00 pm (1st Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christian Chace can be reached on (571) 272-4190. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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